CLAIMS

1. An apparatus for accelerating a destruction of a vortex formed at a rear of a wing of an aircraft by a merging of first and second co-rotating eddies, comprising:

a perturbation device disposed adjacent an area of creation of the first co-rotating eddy, the device configured to generate a periodic perturbation having a wavelength capable of exciting at least one instability mode of the first eddy.

2. The apparatus according to claim 1, wherein the perturbation device is disposed adjacent a flap of the aircraft.

3. The apparatus according to claim 2, wherein the device comprises an unstreamed element.

4. The apparatus according to claim 3, wherein the unstreamed element comprises a cylindrical cross section.

5. The apparatus according to claim 4, wherein the unstreamed element comprises a circular cross section.

6. The apparatus according to claim 4, wherein the unstreamed element comprises an elliptical cross section.

7. The apparatus according to claim 3, wherein the unstreamed element is configured to be extended from and retracted into one of the wing and the flap of the aircraft.

8. The apparatus according to claim 2, wherein the device comprises a fluid jet.

9. The apparatus according to claim 8, wherein the fluid jet is disposed within one of the wing and the flap of the aircraft.

10. An apparatus for accelerating a destruction of a vortex formed at a rear of a wing of an aircraft by a merging of first and second co-rotating eddies, comprising:

means for generating a periodic perturbation having a wavelength capable of exciting at least one instability mode of the first eddy, the means disposed adjacent an area of creation of the first co-rotating eddy.

11. The apparatus according to claim 10, wherein the perturbation device is disposed adjacent a flap of the aircraft.

12. The apparatus according to claim 11, wherein the device comprises an unstreamed element.

13. The apparatus according to claim 12, wherein the unstreamed element is configured to be extended from and retracted into one of the wing and the flap of the aircraft.

14. The apparatus according to claim 11, wherein the device comprises a fluid jet.

15. The apparatus according to claim 8, wherein the fluid jet is disposed within one of the wing and the flap of the aircraft.

16. An apparatus for accelerating a destruction of first and second contra-rotating vortices formed at a rear of first and second wings of an aircraft, the first contra-rotating vortex formed by a merging of first and second co-rotating eddies, and the second contra-rotating vortex formed by a merging of third and fourth co-rotating eddies, the apparatus comprising:

a first perturbation device disposed adjacent an end of a first flap of the first wing creating the first co-rotating eddy; and

a second perturbation device disposed adjacent an end of a second flap of the second wing creating the third co-rotating eddy;

wherein the first and second perturbation devices are configured to generate periodic perturbations having wavelengths capable of exciting instability modes of the

first and third eddies, such that diameters of the first and second vortices are greater than a predetermined proportion of a distance between the first and second vortices.

17. The apparatus according to claim 16, wherein the first and second perturbation devices are configured to generate periodic perturbations having wavelengths capable of exciting instability modes of the first and third eddies, such that the diameters of the first and second vortices are greater than about 30% of the distance between the first and second vortices.